APPENDIX VII Oil in Sinkiang

315 IT HAS long been known that there are sources of oil in Sinkiang. Seepage oil, thinned out with vegetable oil, was traditionally used for lighting. The crude oil was also used for axle grease.

Deposits are known to lie along the Tien Shan, both north and south of the main range. More recently, oil has been struck in the extreme south of Sinkiang, at the edge of the Tibetan plateau.

East of Sinkiang, there is oil in the western "panhandle" of Kansu; still farther east, oil has been worked on a small scale in northern Shensi province, near the wartime Communist capital of Yenan. It does not appear to be known whether any or all of these deposits, which are the only known deposits in Chinese territory, are geologically related to the oil fields of the Caspian region, in Soviet territory, or to those of Iran in the Middle East.

135 315 In 1948, the Chinese National Resources Commission (NRC) confirmed press reports of the discovery of oil on the Sinkiang-Ch'inghai border, near the newly constructed highway connecting those two provinces. Mr. C. H. Wu, Secretary General of the NRC, stated that the field is located at Timurlik, near the border of the Tsaidam Basin, which forms the lowest part of the Tibetan plateau, between 80 and 92 degrees longitude and 36 and 40 degrees latitude. It was discovered by the exploration department of the Kansu-Ch'inghai branch of the Chinese Petroleum Corporation, an NRC subsidiary. According to Dr. Wu, a cursory survey reveals more than twenty horizons of oil sand in this field, the thickest horizon being three meters deep. All horizons occur in the Red Bed of the Tertiary Age.

Among the previously known fields, one near Urumchi has been

[p. 278]

1: Lattimore H-4 (no date) 1950 AI 1 Sinkiang AI 1

worked at times in the past when oil could not be obtained from Russia. This field is known to be of the Jurassic Age. 315 135

A small field, known as Jushantze, is located twenty kilometers southeast of Wusu, about halfway along the main trade route between Urumchi and Kulja. The wells, which are known to be shallow, produce a paraffin-base oil under natural pressure. There is no recent information on production.

When the Russians withdrew from Sinkiang in 1942 they capped and turned over to the provincial authorities 25 wells which had been producing 49–52 gravity oil at a depth of 4800 feet. It appears probable that these wells were in the Jushantze field. Although the Russians were quoted as stating that they would return at a later date to work the field again, they took most of the oil-field machinery with them when they withdrew. 315

(Sources: Information from Chinese National Resources Commission, supplied by United States Department of Commerce; see also Huang Chi-ch'ing, *Report on Geological Investigation of Some Oil-Fields in Sinkiang*, by T. K. Huang and others. Nanking, National Geological Survey of China, 1947; No. 21 of Series A of *Memoirs* of Geological Survey of China. Text in English.) 315 113

000 A Sinkiang pilgrim, so the story goes, set out from Ha-mi one day early in this century to see the wondrous iron bridge that an American company had built over the Yellow River near Lan-chou, Kansu. Midway on his journey out of the province and down the panhandle corridor of Western Kansu this Sinkiang man, Ma by name, came upon a Lan-chou countryman also named Ma. From early childhood this second Ma had heard such unbelievable stories about the Ha-mi melons grown in Sinkiang that he was at last setting out to see them for himself. Sipping tea at a roadside inn, the two passed the time of day and soon waxed friendly.

"So far as our Iron Bridge is concerned," stated the Ma of Lan-chou, "it is the highest yet. At this date last year a man fell over the side and, when I left, his body had not yet reached the water."

"H-m-m," murmured the Ma of Ha-mi. "Yes, that's high. But as far as our melons are concerned, you are wasting your time traveling all the way to Ha-mi to see them. They grow to such a size, you know, that by this time next year they will be with you in Lan-chou."

438 Sinkiang *(Hsin-chiang)* has often been called the "New Dominion," and to Chinese, exaggerations notwithstanding, this "new" frontier land has for centuries been full of the wonderful, the picturesque, the bizarre, the new. In the olden days one who brought Ha-mi melons to the capital of the Middle Kingdom would merit special favor, and even today the clippers that soar across Northwest China from Sinkiang to Szechwan inevitably carry a few, now and then, as rare delicacies for the people of Chungking. A rice kernel a half inch long is said to have been developed in the Sinkiang oasis of Aqsu during Manchu Dynasty times, the grapes of Turfan have long been considered unequaled in sweetness and perfection, and today it is the fabulous wealth of Sinkiang's undeveloped natural resources that is inspiring wondrous tales.

35 Like a legend, the news of riches in Sinkiang has run through China in the past decade—and not without reason. For the North Road and South Road are both plentifully supplied with mineral goods. Certain strategic materials are not present, it is true, but in the North Sinkiang triangle bounded by the three Regions of I-li, T'a Ch'eng, and Tihwa

alone, resources are available in such an abundance as can furnish the foundation for a thriving industrialization. 135

Iron, coal, copper and gold have been found near Sui-ting (I-li). Henceforth this important center on the Soviet-Chinese border may take its prosperous tea and fur trade for granted and brag, instead, of blazing furnaces. T'a Ch'eng (Chuguchak), a frontier locality on the road from the Turksib Railway and probably the only city to have boomed more than Sui-ting, is already boasting of the iron vein one hundred and thirty miles long which runs right through the town, and of the Black Oil Mountain nearby. The oil appears abundantly in the form of springs and is especially black and thick. It is probably a tar, for it gets hard and has been used in the laying out and paving of the new provincial highways. There is coal too, not far away. But miners are nothing new for T'a Ch'eng; in the eighteenth and nineteenth centuries there were thousands of them prospecting in the fifty square miles or so of gold mines roundabout, or so the old people say. 135 316

Tihwa (Urumchi), the provincial capital, with a population judged at around 100,000, dominates both the North and South Roads: hence its military and political importance. Nowadays, not to be outdone, it has also been showing great industrial promise. Most of its houses are heated with oil or coal produced in the vicinity. One visitor to Sheng Shih-ts'ai's headquarters saw a piece of coal so huge that it took two men to carry it. 135 361

Farther south, Kashgar (Su-fu), largest oasis in Sinkiang and hub of both transport and political interests from the neighboring lands of Northwest India, Afghanistan, and Soviet Turkestan, is also blessed with natural resources. Kashgar oil, though often merely "scooped out" by primitive means, has long provided the city with gasoline, kerosene, machine oil, and grease. Even Ma Titai, old-school Commander-in-Chief of the Kashgar district at the close of World War I, guessed at the worth of the oil in his domain. He put most of his personal army to the task of tapping wells for him, and almost negotiated a deal with Soviet Russians of Ferghana for modern machinery. The Russians had said they would supply the machinery and would personally see to its being escorted to Kashgar, when Ma's plans hit a snag. His ambitions 361 315 648

SOVIET RUSSIA
MONGOLIA
INDIA
TIBET
CH'INGHAI
KANSU
SINKIANG
T'A CH'ENG (Chuguchak)
ZAISAN
HA-PA-HO
PU-ERH-CHING
CH'ENG-HUA (Sharasume)
KOBDO
PU-ERH-KEN
SUI-TING (I-li)
I-NING (Ning-yuan)
CHING-HO
WU-SU
SUI-LAI-(Manas)
KUNG-CHU
TOU-K'ANG
FU-YUAN
KU CH'ENG-TZU (Ch'i-t'ai)
MU-LEI-HO
CH'I-CHIO-CHING
BARKOL (Chen-hsi)
HA-MI (Qomul)
HUANG-LU-KANG
CHUAN-CH'ENG-TZU
HSING-HSING HSIA
TA-CH'ÜAN
PAI-TUN-TZU
TUN-HUANG
WU-ERH-T'ENG
ERH-CH'IANG (Charklik)
CH'IEH-MO (Cherchen)
KERIYA (Yü-t'ien)
KARGHALIK (Yeh Ch'eng)
KASHGAR
YANGI HISSAR
SO-CH'E
PA-CHU (Maralbashi)
WEN-HSIU
AQSU
PAI CH'ENG
KUCHA
KORLA
KARASHAHR (Yen-ch'i)
TOQSUN
TURFAN
SHAN-SHAN
TIHWA (Urumchi)
MAP OF SINKIANG MINERAL RESOURCES
KEY
Petroleum
Iron
Coal
Copper
Gold
HAGSTROM CO., N.Y.
Martin R. Norins, November, 1943

[p. 111]

232 The administration of the New Sinkiang has taken significant steps to assist the peasants in the solving of their agricultural and animal husbandry problems. Field stations have been set up in every county with, among other services, eight veterinary hospitals and one veterinary school. There are province-wide facilities by which farmers may rent farm machinery otherwise unavailable. Experimental irrigation stations, forestry offices, and weather bureaus have all been established under Sheng's administration. These are epoch-making innovations for this once relatively isolated "desert" area.

Mineral Resources

● 135 Chinese reports have long testified to the rich mineral potential of Sinkiang Province, but the Occident has only recently attempted systematic study of that testimony. Now it is learned that numerous oil fields have been put into operation in Sinkiang. "Prosperous," though primitive, iron foundries have existed since the time of Ch'ien Lung (1736-1796), and now the Sinkiang iron veins are being rapidly opened. Excellent coal is found near Tihwa, Kashgar, and Yangi Hissar. The gold fields of the Altai Mountains are among the richest in Asia; and good-quality copper ore is being extracted from a number of deposits. Almost virgin mineral riches lie in the soil of Sinkiang, and serious attempts have recently been made to bring them into full utility.

Petroleum. A so-called "Ferghana Series" of oil-bearing strata runs into Kashgaria from Russian Turkestan and extends along the foot of the T'ien Shan past Aqsu to Kucha (K'u-ch'e). What may be an extension of this same series reappears again in the region of the Sinkiang North Road. The extent to which this series now is being utilized is indicated by the next table which names some of the fields of the province.

315 Samuel Chao gives a figure of 85,000 catties as the annual production of Sinkiang mineral oil. But in the past there has only been fractional utilization of the provincial oil potential; there has not, moreover, been sufficient public information on the more recent developments, which have no doubt shot the figure considerably higher.

3: Skrine G-3 (1922-1924) 1926 All Sinkiang All

of the Kunlun into the "Begship of the Three Hundred Hill Families," which is under the jurisdiction of the Amban of Chira. The people of Polu complain of this arrangement, for Chira is twice as far from them as Keriya. They told me however, that whereas they have always been assessed at ten families only, they number about eighty, so that their cultivation is taxed very lightly.[1] They are industrious cultivators, raising crops of barley, millet and lucerne on every available yard; but the dryness of this part of Asia is such that even here, right under snowy mountains 21,000 feet high, crops have to be carefully irrigated. There are two methods of irrigation in use; where the slope is slight, the fields are terraced in the usual manner; where it is steeper, the entire surface is covered with a key-pattern of channels about six inches deep, down which the water trickles over the whole field, a most laborious business. The chief industry, however, is stock-raising; though they look barren enough, the uplands in this neighbourhood grow excellent grass, owing probably to the fertility of the aerially-deposited loess which is found at the very highest elevations and gives a slightly dirty tinge even to the eternal snow. An excellent type of hill-pony, shaggy but better-looking and with finer hair than the Kalmuck ponies, is found here together with a black and very woolly breed of donkey; I bought one of the former for 32 taels (£4 5s.) and it turned out one of the best hill-ponies I have ever ridden. "Polu pony" as we always called him, besides being strong and willing, was a remarkably intelligent little animal and took in everything that was going on. On the long bare plateaux of Poma Qir and Chata Qir west of Polu we saw herds of yaks and camels as well as the ubiquitous sheep and goats.

An industry which would be of greater importance locally than it is, if the Chinese did not strictly control it and limit the output, is gold-washing. There is no doubt that gold exists in large quantities throughout the length, not only of the Altun Tagh but of the whole Kunlun system. I heard of gold-washing high up among the almost inaccessible gorges of the Upper Yarkand River; Stein mentions it at Pisha in the Qaranghu Tagh (Central Kunlun),[2] and speaks feelingly of

[1] This agrees roughly with what Stein heard at Chakar ("Serindia," pp. 1320–21); that the number of families in the Begship was assessed at 221, but amounted in 1907 to 1,802.

[2] "Ruins of Desert Cathay," Vol. II, p. 210.

3: Skrine G-3 (1922-1924) 1926 All Sinkiang All

316 .135 the appalling conditions under which the gold-miners work in the Zailik valley, 13,500 feet up among the peaks to the south-west of Polu; the well-known mines of Surghak and Chizghan, 60–85 miles E.S.E. of Keriya, employ 2,000 labourers even under the Chinese system. Gold is continually being found in new places between Chizghan and Tunhwang in Kansu province, 700 miles eastward. I heard at Keriya of three new mines, all rich, to which there had been miniature "gold-rushes" during the previous two or three years. All the mines between Polu and Cherchen are under the control of the Amban of Keriya, who farms them out to a Beg for a fixed annual weight of gold-dust to be delivered to the Chinese at the fixed rate of 25 taels per tael weight, about five-sevenths of the average market price at Khotan. The Beg is not supposed to extract more than that amount from the mines, but of course he does. He finds, pays and feeds his own miners, whose numbers are augmented at Surghak by numerous convicts. The Chinese do not allow the local people to wash for gold except for the Beg, and as his total output is limited by contract he does not often give the inhabitants of a village like Polu leave to wash for him. As a special favour we were given a demonstration of the primitive methods used. Three boys crawled into a hole in the conglomerate bank of the Polu stream and passed out tray after tray of blueish gravelly earth; a fourth washed it in a wooden pan shaped like a very shallow cone with a slit in it. From each trayful the boy got from two to seven tiny grains of gold, some red, some yellow; in a quarter of an hour he had washed out a quantity which he told us was worth a tenga (*2d.*) at the Beg's rates. In a day's work, he told us, he would get anything from one-tenth of a tael to 10 taels worth (*3d.*–£1 *7s.*).

609 000 The men of Polu are exceptionally friendly and hospitable to Europeans, a fact noticed by Deasy, Stein and the few other travellers who have come this way. The villagers still remember Deasy, though his visit took place as long ago as 1897. The stable in which his ponies were kept is pointed out with pride, also the room in which stayed the Chinese *ssu-yeh* or secretary who was sent by the Amban of Keriya to watch Deasy and prevent him at all costs from finding the secret path over the Kunlun.[1] One of the *bais* or chief men, Tokhta Khalfa, told me with pride that it was his father, Rahim Khalfa, who really helped Deasy to cross the mountains.

[1] Deasy, "In Tibet and Chinese Turkistan," p. 308.

3: Skrine G-3 (1922-1924) 1926 All Sinkiang All

487 range. But when we tried it the first morning, down came the clouds and we had to turn back half-way. I had also hoped to obtain a close view of the needle-like Shiwakte group from some vantage-point near the head of the Tigarmansu Jilgha; but the peaks which shut in the head of the valley never cleared of cloud at all. I had therefore to confine my attentions to the valley itself, of which I made a plane-table sketch. At the foot of the ancient terminal moraine on which the camp was pitched we found a remarkable phenomenon; a flood of shell-pink water gushed out from among the roots of the great firs and joined the glacier stream, the waters of which it perceptibly tinged with its own exquisite hue. Two miles above the camp, at the foot of the existing glacier 13,350 feet above the sea, we found the source of the pink colour; in the moraine were beds of red clay over which a strong stream flowed from the glacier for a hundred yards before disappearing into the earth. At various points in the valley I noticed a greenish tinge in the rocks, which suggested copper. The Kirghiz told me that a rich vein of copper ore had once been worked in a terrifying and barely accessible cleft which they pointed out to me, high up on the precipitous north-west face of Kŏk Dŏng; it was so rich that in spite of the primitiveness of their methods the Kirghiz had for years smelted the ore and made pots and pans and cartridge cases out of the copper. In recent years the mine had been abandoned and its very existence kept dark for fear of the Titai's men hearing about it, as this would have meant the mine being taken over and the Kirghiz forced to work in it for the benefit of the Titai. It was for the same reason that they kept so quiet about the track over the At Bel Pass from the Yapchan Jilgha, which we should never have found for ourselves if old Samsaq Bai had not shown it to us. The Tigarmansu glen is accessible by this track alone, at any rate in summer; there is no exit from its upper end, and its lower reaches lie through a deep and narrow gorge impassable in the high-water season.

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On our way back to the Yapchan alp, where we had left our ents, we visited Samsaq Bai and his clan, who were encamped this year just behind the fir-clad crest of one of the great precipices of Zor Qir. A grassy ridge dotted with clumps of juniper and fir, very much like a well-laid-out park, jutted out 1,500 feet above the Yapchan valley like the prow of a ship; all round the *aq-ois* the turf was starred with purple anemones, gentians and marigolds. The grazing was rich and the view

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132 irrigation. There is, therefore, a common saying in the area that sunshine equals rainfall.

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132 Generally speaking, Northwest China is affected by the high pressure of the Mongolian Plateau. It is windy throughout the year, particularly in the spring. There are also local cyclones on the Gobi desert during the hot summer. These cyclones are relatively short-lived and remain within one area. Winds blow more strongly in the spring than in other months of the year, because at this time the center of the high pressure area is moving toward the northern part of Central Asia and Northwest China is just beyond the edge of the high
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[132] pressure. Since Sinkiang is in the high pressure circle in the winter, the wind blows calmly. When the strong winds sweep down to the ground in spring or summer they do much damage to agricultural crops. Therefore, the places which face such strong winds are the places where agricultural products are relatively poor.

In summary climate is modified by topography and the distance of the area from the sea. Northwest China is located in the interior of China and is remote from seas. The huge mountains and the gigantic deserts render the climate generally dry throughout the year. According to Koppen's classification, the area lies in the zone of B climate; that is, the potential evaporation exceeds precipitation. Owing to topographical features' influence upon climatic changes, it is always drier
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[132] on the southern and sunny sides of the mountains than on the northern and shady sides of the ranges. In southern Sinkiang, for example, the climate is classified as a dry desert type; whereas, in northern Sinkiang, it is a steppe climate. This difference is mainly due to the amount of precipitation. In the steppe regions the precipitation is always greater than it is in the desert area.

In Northwest China, the temperature changes rapidly from day to day and season to season. Precipitation is greatest in the summer months but it is not reliable.

II. Mineral Resources.

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A. General Distribution and Some Specific Importance

135 Northwest China is a poverty-stricken area, due in part to insufficient fainfall and also because it was until recently, practically an unexplored region in regard to its natural resources. Although the coal reserve of Shensi is known to be rich (next only to its close neighbor, Shansi,) (if reported recent discoveries in the Northeast are left out of consideration), it has not been mined to any great extent due to the lack of a nearby market. The only other promising mineral is the

in Kansu province; in addition, bornite, presumed to be very rare in the eastern hemishpere, has been discovered in southern Shensi province, leading to the belief that China may have rich additional bornite deposits. (China Monthly Review, May, 1953, p. 75.) In addition, several new copper deposits were found at Pai-cheng, Urumchi, Kashgar and Ili in Sinkiang province.

Rich iron ore deposits have been discovered with a proved reserve of as much as 47,537,000 metric tons in Sinkiang, sixt among all the provinces. (1945 Mining Report, China Geological Survey). In addition , some new iron ore deposits were found in Urumchi, Kucha, Pai-cheng, Wuka, Ta-cheng, and I-ning. Together with the discovery of some high quality tungsten ore in Wen-chuan of Sinkiang and some manganese ore in Kan-ku and Yung-teng of Kansu, Sinkiang possesses practically all the basic elements for the development of iron and steel industries.

There are many inland lakes and dried up lake basins all over the northwest provinces, among them the Tsaidam of Chinghai and Tarim of Sinkiang, two of the largest inland drained basins in the world. They provide the basic sodium salts. The almost inexhaustible and widespread salt and soda deposits in Kansu and particularly in parts of Ninghsia, Chinghai and Sinkiang together with the nearby rich oil fields provide a sound basis for the development of chemical industries.

While the mineral resources of northwest China are still being surveyed and their actual extent is not known, the outlook appears promising, particularly in the province of Sinkiang. All in all, northwest China with an area of 412,159 square miles and a population of 35,359,525, endowed with mineral wealth, has great prospects of becoming one of China's major industrial centers in the future.

B. The Principal Minerals

1. Fuel and Power

a. Petroleum and Oil Shale

Until recently, oil refineries in China have been crude, most of them having been manufactured locally; the only ones of any size are located at Shih-you-ho in Kansu and at Tu-shan-tzu in Sinkiang. New refinery equipment was ordered from America at the end of the war, which provided a modern installation capable of handling greatly increased production and making oil products of a much better grade from the Shih-you-ho plants at the Yü-men field in northwest Kansu. Some similar modern refinery equipment has been bought from the Soviet bloc, reportedly Poland, Czechoslovakia and Rumania, for the

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[433] now enable Yü-men to produce eighteen percent more heavy lubricating oil and fifteen percent more kerosene. (NCNA April 22, 1955).

Numerous new oil-bearing structures and seepages have recently been discovered around Wu-chung, Ku-yüan, Hua-ting and some other districts in Eastern Kansu province. A recent report stated that preparations are now being made to drill a deep test well on the biggest structure which extends over 120 square kilometers around Wu-chung. (See Table II.)

Oil Development in Sinkiang:

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[135] To the west of Kansu lies Sinkiang, a province rich in minerals, particularly oil. Recent prospecting reveals that Sinkiang has excellent oil possibilities.

There are two basins, the Dzungarian in the north and the Tarim in the south. Seepages have been found in both and the prospects of finding petroleum are good. The Dzungarian Basin is enclosed between the Tien-shan Range on the south and the Altai mountains in the north. Seepages are reported at Ching-shih-hsia near Chuguchak (Tarbagatai or Ta-cheng) (46.45 by 83.40), near Kuldja (Ili or Ining) 43.48 by 81.17), at a place southwest of Sui-lai (44.21 by 86.19) and at Urumchi (Tihua) (43.48 by 87.36). The Tu-shan-tzu field is about five miles southeast of Wu-su, (location approximately 44.15 by 85.0). In the district of Wu-su there are also oil seepages at Ssu-su-mu, Chiang-chun-kou, An-chih-hai-ho, and Ta-shih-tan.

The Tarim Basin lies south of the Tien shan and north of the Kunlun and Altyn Tagh mountains in southern Sinkiang. It is occupied by the great Takla Makan Desert, one of the most barren spots on earth. A small, undeveloped oil field is said to exist at Hei-tzu-erh-po near Kashgar (39.27 by 75.59), and there are oil seepages at Su-ta-che, Shui-mo-kou, Tun-ho, Ssu-cha-kou, Wensu Aksu (41.06 by 79.58), at Shang Wu-pu in Sha-che, Yarkand, Hsiao-kuai in Sha-wan and at Kucha (41.40 by 83.04). From the geological formation, which consists of a thick series of Tertiary strata containing marine Eocene beds in the western part of the basin and which underlie the basin, it is thought that the oil possibilities are good. Much work will have to be done to map the structures.

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Drilling has been started at Hung-tung-shan in Kucha, at Hsi-ho in Tarbagatai (T-cheng), Tu-shan-tzu south of Wu-su, Urumchi, Turfan, and Kashgar (Shu-leh). Petroleum is obtained to the west of Urumchi, where the oil is scooped from the surface of water with buckets. The petroleum is of black color. Petroleum can also be found from Shih-ho to Manas in the Urkashar Mountains, and also between the caravan stations of Kurtu Anchihai-ho in the district of Wu-su. The richest

1, [See p. 128--Analyst]

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315 oil shales, heavy feldspar, and other minerals. By mid-June,
654 1955, as a result of an air survey to prospect for oil in Sinkiang, in addition to ground teams with magnetic and gravitational methods in the search for oil, the secret of a petroleum river has been leaked out from a state oil refinery. (American Consul General, SCMP, June 1-30, 1955; June 16, p. 3-5), and ten promising areas for petroleum
N production are discovered.
315 Oil prospecting in Chinghai:

No actual drilling and production of oil are reported from Chinghai, but the province has been prospected extensively for oil since early 1955. Promising discoveries of oil-bearing structures have been increasingly revealed.

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[654] Two oil-prospecting teams were sent to Chinghai under the supervision of the Ministry of Fuel Industries and the Ministry of Geology. A new oil field was first discovered southeast of Hsi-ning, the capital of Chinghai province. Oil wells for trial production are reported to be sunk there. (NCNA, April 26, 1955). New Oil-bearing structures have just been discovered in the Tsaidam Basin in Chanhai province. (Am. Consul General: SCMP June 1-30, 1955, p. 27).

The Tsaidam Basin is one of the concentration points of present day oil prospecting and more oil bearing structures have been increasingly discovered in the area. (NCNA, June, 1955). In order to do the prospecting work, members of the Youth Prospecting Corps are dispatched there, and they
N have reported new discoveries of oil structures in the basin.
[654] Following the recent discovery of the four layer oil structure by the fourth Sub-company of Number 632 Company of the Northwest Geological Bureau, the Number 104 Company under the Chinghai Petroleum prospecting Bureau of the petroleum prospecting General Bureau discovered at the foot of the northern slopes of the Kunlun mountains, a three layer oil structure in May, 1955. (Am. Consul General: SCMP June 1-30, 1955, p. 28). As to the exact locations of these new discoveries and their possible reserves, no data are available. Recent reporters however say that the newly discovered oil deposits in the Tsaidam Basin and at Karamai Northwest of Urumchi have even greater prospects than the Yü-men field (N. Y. Times, August 15, 1956).

N b. Coal
135 Northwest China is particularly rich in coal. About twenty-nine percent of China's coal reserve lies in Shensi alone, formerly considered second only to its neighbor Shansi, if claims of recent Manchurian discoveries are discounted).
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[135] With some new discoveries, Sinkiang claims a coal reserve next only to Shansi and Shensi provinces. Thus the Northwest

N 135 region, even excluding Shansi, ranks high and accounts for about half the coal deposits of all China. The known coal S [135] reserve of Shensi amounts to over 72,950 million tons and that of Sinkiang is over 35,000 million, about half that of Shensi. Most of the coal deposits of the Northwest are of good quality and have been exploited very little. Thus they provide sufficient fuel for industrial development for a considerable length of time.

Some New Coal Discoveries:

N 316 Some new discoveries of coal deposits have been reported. In addition to the previously mentioned, newly discovered big coal field in west Kansu, which is estimated to have a reserve four times that of A-kan-chen colliery, one of the major coal mines in Kansu, new coal deposits are found in the vicinity of Ching-tai in north Kansu in 1954. Large scale and detailed prospecting is now under way. Also, many prospecting teams are searching for mineral deposits in the Chiu-chuan (Su-chou) district of northwest Kansu and in the Tsaidam Basin of Chinghai province. (FBIS, Daily Report, No. 102, 1955). Mining machinery and other equipment are now being sent from Sian, the capital of Shensi, to the site of the deposits. Drilling teams arrived and have been working since early May, 1955; it is said when put into operation, the new coal field will supply Lanchow, the capital of Kansu, and Kan su-Sinkiang Railway and the Paotow-Lanchow Railway lines, both of which are now under rapid construction. (NCNA April 24, 1955). Deposits of good quality coal have also been discovered in the Tsaidam Basin, Chinghai, where oil is being prospected. The coal deposits consist of seven seams totalling some twenty-five meters in thickness. They are suitable for open-cut working (NCNA, June 19, 1955).

S 135 In Sinkiang, coal deposits are widely distributed. They are found in the vicinity of Aksu, Kucha, Kurin, Turfan, Urumchi, along both shores of the Ili river, and in the north of Chuguchak. In addition to the above-mentioned places, high quality coal deposits are located along the northern slope of the Tien-shan mountains in Wu-su district. The Sinkiang coal belongs to Jurassic formation. The deposits are of exceptional good quality with thick seams. Most are bituminous and some may be good for coking industrial uses.

Sinkiang's coal deposits were estimated at over 35,000 million metric tons in 1955 (32,000 million in 1950), fourteen percent of China's total. The richest coal beds in the province are those of the Ili valley and near Urumchi. There are good anthracite beds in both places. Similar beds are also found S 316 near Aksu, Kucha, Yenchi and Hissar. Geological teams were sent in early 1955 to investigate the two large coal fields in

and Liu-pa followed by Lüeh-yang, Tsu-nan, Chenan and Hsihsiang, where primitive mining has been carried on by native methods. The total annual production is less than 2,000 tons.

In Kansu, iron ore is mined in the districts of Liang-tang, Hui-hsien, Cheng-hsien, Hsi-ku, Yung-tang, Tien-shui, and Wen-hsien. The total output is about 25,000 tons, while the total reserve of Kansu is said to amount to 12,600,000 metric tons.

Iron ore deposits have been reported in Chinghai, but no further data are available.

In Sinkiang, iron deposits are distributed both in the northern and southern parts of the province. The largest vein is the ore which occurs at Ali in Kucha with a reserve of nearly three million metric tons and a content of thirty percent. It is specularite ore. There is another specularite ore deposit in the hills west of Urumchi. It has a reserve of 750,000 metric tons with a content of twenty-five to forty percent. Other iron ore deposits are found at Pai-cheng, Chang-chi, Fu-yüan, and Ta-cheng. However, the vein of Khara Balgasun mountain near Turfan is historically the best known to the Chinese. The iron mines at Kizil near Yarkand are also of high quality. Extensive iron beds are also reported at Yengi Hissar and in the Ili valley. At present, iron ore is mined mainly in Kashgar. Before World War II, there were some four or five smelting furnaces in operation with a yearly production of 150 tons or iron. Now, according to 1955 reports, in Urumchi a steel factory is producing agricultural implements, etc. There is a factory for repairing automobiles, and one for producing machine tools. They are modest, but this does not mean that other factories, about which the press is silent, do not exist.

With regard to the distribution of iron ore in Sinkiang and the northwest as a whole, the following two tables may be found useful. (See Tables V and VI.)

b. Ferro alloys:

Tungsten, molybdenum, and nickel have been reported in the province of Sinkiang, and manganese in Kansu. With regard to their distribution and reserves very little information is available. Tungsten is produced at Chi-ka-tai, Ho-ssu-tai and Chu-li-kun, north of Wen-chuan-hsien in Sinkiang. A reserve of 8,600 metric tons is estimated for the three deposits; mechanized mining with Soviet equipment has started. Molybdenum is produced at Na-lu-kou and Pa-tu-lu-kou in Ching-ho-hsien. A total reserve of 2,000 metric tons for the former and 7,000 tons for the latter are estimated. The ore is reported to have a content of sixty-five percent WO_3. Manganese ore is found at Hsi-wan of Kan-ku Hsien and Shan-lan-men-shih of Yung-teng-hsien in Kansu. The former has a reserve of 200,000 metric tons with a content of 41.47 percent MnO_2 and the latter

1, [See p. 131--Analyst]

N S 135 has a reserve of 700,000 metric tons. Pozdneev, D. M., mentions that nickel exists in Sinkiang in his Ocherki Stran Dal'nego Vostoka (Essays on Far Eastern Countries), pp. 164-66, but no further data are available.

3. Non-ferrous metals

Among the non-ferrous metals of northwest China Copper, gold, S 316 [508] platinum, silver, aluminum, lead and zinc are relatively important. The air approach to the Koz-tokai mining area of the Sinkiang Non-ferrous Metals Company is a vast snowbound area on the eastern side of the Altai Range on the Sino-Soviet S [491] border. A smooth highway runs from the airfield to the mining town. (Urumchi, Uighur, Feb. 1, 1955, 1150 GMT. -B, cited by FBIS, No. 25, Feb. 4, 1955).

S N 135 a. Copper:

Rich copper deposits have been found in Shensi, Kansu, and Sinkiang. In addition, bornite, presumed to be very rare in the Eastern Hemisphere, has been discovered in south Shensi province, leading to the belief that China may have additional rich bornite deposits. Sinkiang also has considerable copper ore deposits of high quality. It is the most important non-ferrous metal resource of the province. It is found in the Ili river valley, in the northern foothills of the Tien-shan and in the S Pamir Mountains, near Kashgar. The copper ore mined near N Kashgar is reported to have a content of thirty to forty percent 316 pure copper and the deposits spread over 600 square miles. The copper ore mined near Kashgar contains thirty-five percent iron and sulfur. That mined at K'ang-shan, Pai-cheng, Urumchi, I-ning, and Sui-ting is also notable. Since native methods are inefficient, some mines originally worked were forced to close, i.e., those near Urumchi, Kashgar and west of Ili. Many other local deposits are known. Before World War II the copper output in Sinkiang was 150 tons a year. In 1930 a state copper melting factory was put into operation in Kashgar which, in addition to processing copper ore, also minted copper coins. The following two tables indicate the distribution of copper mines of Sinkiang and the copper ore deposits of Northwest China in general (Tables VII and VIII.) 1 A

S 135 b. Gold and Platinum:

Gold is particularly rich in Sinkiang. It is widely spread, stretching from the Altai on the north to the Kunlun-Altyn-tagh mountains in the far south.

The names of Altai and Altyn Tagh Mountains mean gold in the Mongolian language. Nuggets weighing as much as forty-four ounces have been found here. Pigeon-egg sized nuggets are also found. Platinum is reputed to exist in the Altai mountains S too. Rich gold mines are found in the vicinity of Khotan, 316 Karagaitash, Sorghal, Keriya (Yü-tien) Cherchen, Yarkand,

1 A [See p. 132-- Analyst]

S 316 and Karashar. Both placer and lode or vein gold are mined. Placer gold is mined in the Ili River, the Kashgar River, S (804) (433) Alintu River, etc. From 100 poods of ore, two to three zolotniks of gold are obtained (one pood : 16.38 kg. and one zolotnik: ninety-sixth part of a former Russian pound). One lode mine is said to have 1.6 ounces a ton. Placer gold is also found in Chinghai. Gold has been exploited systematically in both primitive and modern ways. Where water is available, gold is obtained by washing; where water is not available, by sifting the dirt in wind. The yearly gold output of the province is said to total 100,000 ounces. Gold mining operation in the Altai mountains has been on the increase since 1917 when some 10,000 miners extracted gold valued at over 60,000 taels. In 1942 S (439) thousands of mines were said to be operating in the district though most of the gold mined is reported to have gone to Soviet Russia. It is claimed that in the Altai Hou-kou field, a two and a half pound gold nugget was mined. Cherchen (Chiehmo) and Keriya (Yü-tien) are the richest gold deposits of southern Sinkiang. It is said that gold is so plentiful in Sinkiang that all Moslem families have their own caches hidden away. Gold is panned at irregular intervals from the Hsi-ning N 316 and Ta-tung rivers and their tributaries in Kansu province. (See Table IX.)

S 135 c. Silver and Lead: Lead is most extensively distributed in Sinkiang; it is next only to copper in its wide spread.

Silver-lead ore is located in Burlutugai, near the Sairam Lake north of Kucheng and some other places. Lead content S (316) in the ore is up to thirty percent. Mining is carried on very primitively. Lead mining has been carried on at Wu-shih, Yenki, Wusu, Paicheng, and Kashih. At present, only the deposits at the last two places are being worked. Output is very low because of the backward working methods. Silver is much in evidence at Khotan and Karashar.

d. Aluminum and Bauxite

Rich aluminous ore deposits are located in the north of Kucha near Baldir, also in the vicinity of Yu-tien (Keriya) and some other places. In addition, bauxite from which aluminum is extracted, has been found at Ho-feng (Hishih-Tologai) in Sinkiang.

N 135 4. Non-metallic Minerals:

The important non-metallic minerals of Northwest China are salt and gypsum as well as jade and other precious stones.

a. Salt and gypsum.

Ninghsia of Kansu, Chinghai and Sinkiang are extraordinarily rich in salt. The numerous lakes and dried up lake basins provide the basic sodium salt. In eastern Alashan of former Ninghsia province, the Kilantai and the Charatai Dagasu are the most

N 135 famous salt basins in Northwest China. The latter is thirty-five miles in circumference and covered with a layer of fine salt two to six feet thick.

The Kilantai salt, commonly known as red salt, exports from T'eng-kou on the Yellow River to the markets of Shensi and Kansu (Ninghsia) each year, besides large amounts of salt.

The gypsum reserves have not been estimated by the geological survey of China, so no figures are available. The Northwest provinces of Shensi, Kansu, Chinghai, and Sinkiang are the principal producers. The Taklak gypsum deposit in S [135] Wen-su-hsien (41.19 by 79.50), Sinkiang, has been surveyed; with a ten meter thick bed, it is estimated the deposit contains more than 100,000,000 tons. Another gypsum bed at Pai-ch'eng, Kucha (41.45 by 83.04), with a five-foot bed, is estimated to contain 11,000,000 metric tons. A gypsum bed twenty meters thick at Ha-chia-tsun (36.17 by 63.33) in Yung-teng-hsien (36.44 by 103.24), Kansu province, was estimated to contain 500,000,000 metric tons of gypsum. A gypsum bed at Hsi-ning-hsien (36.37 by 101.49), Chinghai province, covers fifty square kilometers with the gypsum bed running from ten to thirty meters.

(See Tables X and XI.)

b. Borax:

N 317 Borax is produced in Chinghai province by gathering the top soil near saline lakes or dried-up lake basins, the "Tsaidams." The salts are boiled, and the liquid is evaporated. These crude salts are sent to Huang-yüan-hsien (36.42 by 101.13) for refining and separation of the borax. Raw materials are gathered in Tsaidam Basin, at K'o-erh-ko (36.35 by 100.12) and other places.

Amonium chloride is often found as a residue where Jurassic coal beds have burned out the coal seams. At Ko-hsi-erh-ta-ko and Sa-mu-chi-ta-ko in Kucha county (41.45 by 83.04), Sinkiang, S [317] ammonium chloride is dug and sold to silver workers for welding; the amount is small. At the Wu-chi-kou coal mine S [433] (39.01 by 106.03) Ping-lo-hsien, Ninghsia, production is over ten kilograms of ammonium chloride a year. Production can be increased if demand is warranted.

c. Jade and other precious Stones.

S 135 Jade and precious and semi-precious stones such as rubies, topaz, jasper, sapphires and emeralds are found and produced in Sinkiang, particularly along the Kunlun mountains in the southern S [439] part of the province. They are imported via Yümen (which literally means Jade Gate) at the extreme northwest of the Kansu corridor, to the rest of China.

1: Washington S-4 (no date) 1956 AF13 Northwest China AF13
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●135 C. Minerals of Secondary Importance.

Many other minerals, both metallic and non-metallic, have been discovered in the Northwest, particularly in Sinkiang. Among the metallic ones are antimony, zinc, tin, mercury, pyrite, etc. Among the non-metals are magnesite, graphite, sulfur, arsenic, nitrate, asbestos, alum, asphalt, ozocerite, marble, limestone for cement making, etc.

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316 Since mining operations have not yet begun in most cases, it is impossible to predict whether these will prove to be worthwhile, with the exception of magnesite and limestone for cement making.

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135 1. Magnesite and Cement making:

Large deposits of magnesite are found at Tzu-hu county (38.50 by 105.32) of former Ninghsia province, with a reserve

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339 estimated at 38,000,000 tons. A modern cement plant is being built in Kansu province. The cement plant will be the first of its kind in thisprovince, and it will be able to meet local demands for cement. Housing for the workers, an extension railway line and a long distance telephone linking up the site were completed at the end of 1954. (FBIS. No. 25, Feb. 4, 1955).

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316 2. Pyrite and Sulfur

Production of sulfur is reported in the vicinity of Khotan,

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135 Sinkiang. A pyrite deposit is also reported in the Tsai-ku area of Shensi province at the junction of the districts of P'u-cheng, Pai'shui, and Cheng-cheng (or about 35.03 by 109.33). The field is 3.5 miles square, extending on both sides of the Loho River, with veins one to two feet thick. Reserves were given as 4,000,000 tons with a sulfur content probably reaching fifty-three percent, making it the best in the world. (Ref. Industrial Monthly, June 1, 1944, Sian). This may be the same as the Han-chiao-ho field. As China turns to industrialization, the demand for sulfur and sulfuric acid will increase.

3. Asphalt and Ozocerite

In the region of Lake Ayar, large deposits of asphalt and ozocerite are found, but so far they have not been worked.

4. Graphite

Graphite is found at Mei-hsien (34.18 by 107.43) in Shensi province.

III. Population

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161 A. Introduction

The Northwest Region covers the provinces of Shensi, Kansu (including Ninghsia), Chinghai, and the newly established Sinkiang Uighur Autonomous Region in the former Sinkiang Province. Sinkiang alone is larger in area than France, Germany, and

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TABLE IV. China's Northwest:Coal Reserve Distribution by Provinces.[1]
(Reserve in million metric tons and production in tons)

Province	Anthracite	Bituminous	Total	Production(1955)
Shensi	750	71,200	71,950	650,000
Kansu	59	997	1,656[3]	110,000 (240,000 in 1947)
Ninghsia(now belongs to Kansu)	173	284	457	140,000
Chinghai	240	584	824	40,000
Sinkiang		31,980	31,980[2]	180,000

1. Mining Report, 1945, Chinese Geological Survey, cited by Nelson Dickerman:Natural resources of China, Foreign Minerals Survey, 11, No. 7, (1948) Washington D. C. U.S. Bureau of Mines and also by George B. Cressey: China's 500 Million, 1955.

2. Present coal reserve of Sinkiang is estimated at 35,040 million metric tons.

3. A new discovery of 32 million metric tons of coal in 3arly 1955 should be added to Kansu's total reserve.

TABLE V. Iron Deposits in Sinkiang Province*

Locale	Deposit	Comment
Aksu	Ko-kan-chia	two deposits not of highest quality
	Tieh-pen-erh	" " " " " "
	Ko-la-pu-la-ko	
Ching-chi	Meng-ko-tu-ling	
Fu-yüan	Shui-hsi-kou	seven furnaces installed with 600 catties pig iron capacity
Sui-ting (Ili)	So-erh-ko-ling	
Pai-cheng	Ming-pu-la-kou mtn.	mining area of each said to be less than a mile square
	T'a-erh-chi mtns.	
	Ya-se-la-min mts	
	Neng-li-ha-ta mtn	
	K'o-shih-ko-ko-pa-shih mtn.	

1: Washington S-4 (no date) 1956 AF13 Northwest China AF13 Sinkiang All

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TABLE V. (Continued)

Locale	Deposit	Comment
Ta-cheng(Chuguchak)	K'o-la-ta-fu-pan to Ch'erh Shan	vein 130 miles long largest in province
T'a-pan-cheng	unnamed	
Yengi Hissar	I-Ko-jih-ya-yen mtn	
	A-ha-mai-ti mtn.	

* Noris, Martin R.: Gateway to Asia, Chap. IX, pp. 113-14.

TABLE VI. Distribution of Iron Ore Reserves of N. W. China by Provinces*

(Reserve in 1000 metric tons, and production in metric tons)

Province	Proved	Estimated	Total	Percent	Production
Shensi	4,847	6,000	10,847	0.50	1,800
Kansu	2,196	310	2,486	0.10	24,000
Ninghsia	5,079	2,500	7,579	0.35	
Chinghai		5,000	5,000	0.23	
Sinkiang	47,537	1,200	48,737	2.23	

*PAI, CC: General Statement on the Mining Industry. Geological Survey of China, special Report, No. 7, Dec., 1945.

N.B. 1. The total iron ore reserve of Shensi has been raised from 0.5% to 2.3% of the nation's total. That would give it an approximate total of 50,000,000 metric tons.

2. The total iron ore reserve of Kansu has been raised to 12,600,000 metric tons.

1: Washington S-4 (no date) 1956 AF13 Northwest China AF13
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1: Washington S-4 (no date) 1956 AF13 Northwest China AF13
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TABLE VII. Chief Copper Ore Deposits in Sinkiang*

Locale	Deposits	Comment
Sui-ting (Ili)	Wu-tsu-tao shan	
I-ning	Ha-erh-han-tu Shan	
K'ang-shan	unnamed	
Karashar	Ku-erh-tai shan	
Kashgar	Wu-lan-wu-su river	20% pure copper
	Su-hun-shan	40% pure copper
Kucha	New copper works	
	Old copper works	
	Su-pa-shih works	
Pai-cheng	Ho-se-erh works	
	Ko-ta works	
	Kung-po works	
	Upper works	
	Lower works	
Ta-pan-cheng	San-chia shan	
Tihua	Chai-o-pao	

*Noris, Martin R.: Gateway to Asia, Chap. IX, p. 117.

TABLE VIII. Distribution of Copper Deposits of Northwest China

Province	Location of Deposit	Content	Remarks	Lat. & Long.
Shensi	Yu-feng-chia(Lo-nan)	10% Cu	Malachite 3,780 tons (metal	
Chinghai	Ta-hsia (Lo-tu Hsien)	5.3% Cu	worth investi-	36.33 x 102.16
	Wei-chang-kou(Hsün-hua)	45% Cu	gating	35.38 x 102.35
Sinkiang	Gorban Bogdo (Tihua)		" "	43.42 x 88.18
	Jorga (Pai-cheng)		" "	
Wen-su, Turfan, Aksu, Yenchi (for the rest see previous table.)				

TABLE IX. The Best Known Gold Fields of Sinkiang*

Locale	Field	Comment
Altai	Tung-kou Hsi-kou Chien-kou Hou-kou Chung-kou Ha-hsiung-kou Pan-tang-kou	2 1/2 lb. nuggets mined; highest quality
Barkol (Chensi)	Hsiao-liu-kou	
Cherchen (Chieh-Mo)	unnamed	
Chi-tai (Ku Cheng Tzu)	unnamed	
Sui-ting (Ili)	Chio-li-Ko R.	
Keriya (Yutien)	A-ha-ta-Ko Shan Chia-pa-shan Yu-mo-chiang Shan	
Sui-tung	unnamed	
Ta-cheng (Chuguchak)	Ha-tu-shan	placer, between T'a-erh-ta-mu-tu and Su-erh-tu rivers
Tihwa (Urumchi)	unnamed	

* Noris, Martin R.: Gateway to Asia, Chap. IX, pp. 114-17.

1: Washington S-4 (no date) 1956 AF13 Northwest China
Sinkiang All

TABLE X. (Continued)

Province	Field of Deposit	Lat. & Long.	1942 production	Total	1943 prod.	Total
Kansu (Continued)						
	Pei-wen (Lake)	38.50x101.14	130		104	
	Liu-chia-wan(Earth)		100		51	
	Pa-pan		45		19	
				12,335		14,898
Chinghai	Cha-chia (Lake)	36.48x 99.23	1,700		2,427	
	She-an-tang(Earth)	36.23x102.53	25		28	
				1,725		2,455
	GRAND TOTAL			91,165		69,331

TABLE XI. Distribution of Gypsum Deposits of Northwest China by Province

Province	Field of Deposit	Location
Shensi	Lin-tung	34.24x109.13
Chinghai	Hsining	36.37x101.46
Kansu	Ha-chia-tsun, Yung-teng	36.37x103.33
Sinkiang	Wen-su	41.15x79.55
	Kuche	41.43x82.54
	Pai-cheng	41.46x81.52

TABLE XII. Population Increase of the Various Regions

Major Regions	No. Places Surveyed	No. Farm Families invest'd.	Birth Rate*	Death Rate*	Natural Increase
Northwest	14	5,648	35.0	22.0	11.5
North China	26	10,816	40.2	26.6	13.6
Lower Yangtze	21	9,849	38.5	28.3	10.1
Southwest	20	5,343	46.2	35.6	10.6
Southeast	12	4,540	37.7	31.2	6.5
	93	36,196	39.3	28.2	11.1

*per 1,000

1: Washington S-4 (no date) 1956 AF13 Northwest China AF13 Sinkiang All

175 7, 1944. This Kazakh uprising occurred in the three border
648 districts of Ili, Chuguchak (Tacheng), and Ashan (Altai) and
669 resulted in the establishment of an "East Turkestan Republic."
These districts on the Soviet border were preponderantly Kazakh in population and comprised almost one-sixth of the population of the province. They are rich in oil, coal, iron, tungsten, gold, lead, and reportedly also in uranium; they also have rich agricultural soil. The revolt was in the hands of experienced Kazakh leaders who had been in practical control of much of the area since their earlier uprising in 1940. When they had attempted in 1943 to declare their independence, they had been forced to abandon this plan by the threat of military action from the Soviet troops that were guarding the closed mines in the area. But by 1944 the Soviets were willing to support them. Their uprising resulted in fighting in the Ili valley for over a month until the Chinese provincial troops gave up the city of Kulja which remained under the control of Kazakh insurgents. From Kulja the rebel forces moved north to extend their control over the Chuguchak region and then captured the town of Manass close to Urumchi. The rebellion also spread to some cities of southern Turkestan. When attempts to suppress the rebellion by military forces failed, the Chinese National Government, which by this time was reasserting its authority over Sinkiang, sent General Chang Chih=chung to Sinkiang in September 1945 to negotiate with the rebels. These negotiations were handled through the mediation of the Soviet Consul-General in Urumchi. After many meetings between October 1945 and June 1946, the negotiations resulted in three agreements signed by General Chang and three Kulja delegates. The agreements resulted in the abolition of the "East Turkestan Republic" and of its local flag but they practically secured autonomy
[635] for the rebellious districts and troops. They also resulted in the reorganization of the provincial government. The new governor, Chang Chih-chung had two vice-governors as his assistants, one
[563] an Uighur, the other a Tatar. The appointment of representatives of the nationalities to such positions was an attempt to pacify the revolt of the nationalities against Chinese rule. Governor Chang did not, however, regain any control over the autonomous group which continued to rule the vital border districts of Sinkiang under the leadership of Akmedjan, Burkhan, Isakh Beg, and Saifuddin. The national government troops under Governor Chang did not control the area west of Urumchi and the products of this region, including the oil, coal, and mineral products, went to the Soviet
175 side. From 1943 on the Soviet resumed the working of the tung-
648 sten mines and since 1945 the Soviets have reportedly obtained
[135] diamonds, gold, bismuth, and uranium from this area. An attempt by the Chinese government to end this secret exploitation of

one of the most important industrial areas in China for three reasons. First, the Northwest, especially Sinkiang, has shown great promise in mineral deposits. The Communists have sent out thousands of geologic prospectors to this area, and reports of new discoveries have frequently been publicized by the Communist papers, (see the section on Mineral Resources). Second, the geographical location of this area is such that it would be the ideal location for China's new industries from the strategic point of view. Last, as this area borders on Soviet Russia, it would be more convenient from the standpoint of accepting technical aid from Russia.

Based perhaps on the above-mentioned reasoning, the Communists have paid special attention to the future development of this area. In Sinkiang, for instance, before the Communists took over, there was very little industrial production. But in 1952, the total industrial production in Sinkiang amounted to New JMP$39,075,400, not including the value of handicrafts, which amounted to New JMP$135,598,000. In terms of percentages of the 1952 production in Sinkiang, the industrial production accounted for 5.71 percent of the total, and the handicrafts accounted for 19.81 percent. According to plans, by the end of 1957, the value of industrial production in Sinkiang will be increased to New JMP$292,758,500, or 749 percent of that of 1952. If these plans are carried out, industrial production will account for 22.64 of the total production in Sinkiang and handicrafts will account for 15.09 percent of the total; the planned total production for 1957 would be New JMP$1,293,227,200.

3:Cable & French M-5 (1926) 1927 AF13 Northwest China
Sinkiang AI 1

no further trouble in the inn from inquisitive onlookers. We hung a curtain at our door and no one ventured to lift it.

The aspect of Hsinghsinghsia was very remarkable. It is a narrow ravine between massive rocks. All these were of sombre colour and forbidding outline, some being veined with long streaks of white granite, which traversed them just as forked-lightning appears to rend an ink-black sky. The lower portion of the rocks was worn by the waters of some ancient river, and an old tablet records that ' In this place baboons were wont to come to drink,' hence the name ' The Ravine of Baboons.' The only object of historical interest was the grave of a Mahommedan saint, whose tomb was cut in the solid rock. It was sealed, but hearing that we wished to see it, a sergeant broke the seals and allowed us to enter. The sepulchre dated from the Han dynasty, in the early days of the Christian era, and is believed by the faithful to hold an empty tomb, the holy man, whose name was Kai, having come to life again and passed elsewhere. In the Chinese temple the Taoist priest showed us with pride a fine specimen of quartz, which he had procured from a neighbouring hill. The name of Hsinghsinghsia, by the alteration of a character without changing the sound, may also be read ' The Starry Pass,' and the two names are used interchangeably. This quartz he called the ' Star Stone ' and the hill from which it is taken ' Starry Mountain.' It glitters in the moonlight like a thousand twinkling stars.

As the evangelistic services continued we became very friendly with the men, from whom we heard many tragic stories. One boy of sixteen had been on his way from his home in Yungchang, Kansu, to an uncle, who had a business in Hami. ' My mother is a widow and I

3:Cable & French M-5 (1926) 1927 AF13 Northwest China
Sinkiang AI 1

'The Governor declares,' read the officer, who this morning was in a flattering mood, 'that the three ladies, Feng Precious Pearl, Feng Polished Jade, and Kai All Brave, are people of the highest reputation, and therefore they, their escort and baggage, are permitted to enter Turkestan without delay.'

There was great lamentation in the garrison when the men saw us preparing to leave. 'They say that next week we shall get our pay, and if this be true we would have bought all your remaining books!' The gaming tables were abandoned as the crowd gathered to say good-bye and wish us good luck, and as we left the ravine an orderly appeared carrying a handful of vegetables—two cucumbers and a melon—from the officer's wife. The supply of these luxuries from Hami being very limited this gift represented a whole day's ration for her household.

It was with a delightful sense of freedom that we emerged from the 'Ravine of the Baboons' and took the desert path once more. We had left the grey and black pebbles of the Black Gobi behind us on the south side of the ravine, and we now came out into a most interesting and varied country. Granite hills surrounded us, and frequently the carts had to be dragged over immense slabs. The soil in places was red; the outlines of the ranges of hills were bare and rugged, while their colouring was as delicate as it was remarkable. Blue, purple, green and grey stretches of rock lay all around us, and as sun and shadow played on them the whole landscape was iridescent with the tones of the rainbow. We also passed at the very foot of the Starry Mountain, and there delayed a few minutes so as to fill our hands with the glittering fragments of quartz. At the base of the granite rocks were excavated holes, large enough to admit the entrance of a man's body, and

3:Cable & French M-5 (1926) 1927 AF13 Northwest China
Sinkiang AI 1

these proved to be gold-mines from which the sand, having been removed in baskets, provides a fair amount of gold-dust, after being washed out. In some places[1] the grit on which we walked was composed of minute granite fragments of every colour, and it was very interesting to notice that the little, grey, desert lizard, which had never left us all through our travels, had so accommodated itself to the soil in which it lived that its skin had become many-hued, like a beautiful mosaic, so that it was indistinguishable from the surrounding ground.

A large temple stood on an eminence not far from the ravine, and here we found the lamas, who had been as prompt as ourselves in quitting the camp, burning incense and making obeisance to the gods. The lamas expressed some surprise that we neither burned incense nor prostrated ourselves, nor sought the blessing of the Guardians of the Road by striking the temple bell with its wooden hammer to call their attention. We were the only travellers on that road who would dare to take such a journey without observing this ritual, and such an omission must be either a sign of impiety or that we enjoyed the protection of a power superior to any god in that temple. 'We never start on our day's journey without asking the blessing of God,' explained one of our carters, who two months previously would have been as unwilling as the lamas themselves to leave without the blessing of the Goddess of Mercy.

It was fortunate for us that this first journey, taken as it was by day, was not an abnormally long one, and by 10 p.m. we reached Shachüantz—'The Spring of the Sands'—but unfortunately it surpassed all the others we had hitherto sampled for the bad quality of its water, which was metallic as well as bitter and salt. The slabs of granite over which we had driven had,

1[Near Hsinghsinghsia -- Analyst]